

THE INVENTION CLAIMED IS:

1. An assembly of glass blocks held in a structural frame comprising:
  - a plurality of glass blocks each having two rectangular display faces and four edge faces;
  - a rectangular structural perimeter frame having four sides;
  - a plurality of primary muntins, each primary muntin comprising an elongate web with stand-offs extending outward from the web and at least one elongate hollow boss integral with the web, the primary muntins extending entirely across the structural perimeter frame;
  - a plurality of secondary muntins, the secondary muntins comprising a web with stand-offs extending outward from the web and at least one hollow boss integral with the web, lengths of the secondary muntins extending just somewhat longer than lengths of the edge faces or the display faces of the glass blocks; and
  - a plurality of structural rods inserted through the hollow bosses of the secondary muntins and extending entirely across the structural perimeter frame, such that the primary and secondary muntins form a matrix within the structural perimeter frame with openings for receiving the plurality of glass blocks.
2. The assembly according to claim 1, wherein the primary muntins and the secondary muntins are extruded.
3. The assembly according to claim 1, wherein the widths of the primary and secondary muntins are substantially the same.
4. The assembly according to claim 1, wherein the widths of the primary and secondary muntins are different.
5. The assembly according to claim 1, wherein the matrix is secured to the structural perimeter frame by nuts on threaded ends of the rods inserted through the hollow bosses of the secondary muntins or by screw fasteners engaging the hollow bosses of the primary muntins.

6. The assembly of claim 5, wherein a plurality of structural rods is inserted through the hollow bosses of the primary muntins and extends across the structural perimeter frame.

7. The assembly of claim 1, wherein sections of the primary and secondary muntins are different in that the hollow bosses in the primary muntins are not located at the same position across the width of the muntin as the hollow bosses in the secondary muntins.

8. The assembly of claim 1, further comprising an elastomeric spacer at the edge faces of each of the glass blocks, wherein the elastomeric spacers contact the stand-offs of the primary and secondary muntins when the glass blocks are inserted in the matrix.

9. The assembly according to claim 8, wherein the spacers are made of an intumescent material.

10. The assembly according to claim 8, wherein the spacers act as a backing to support a sealant.

11. The assembly of claim 1, further comprising elastomeric spacers placed on the primary and secondary muntins, wherein the elastomeric spacers contact the edge faces of the glass blocks when the glass blocks are inserted in the matrix.

12. The assembly according to claim 1, wherein the glass blocks are sealed in the matrix with caulking material between the edge faces thereof.

13. The assembly according to claim 12, wherein the glass blocks have central recesses on the edge faces and wherein the caulking enters the recesses.

14. The assembly according to claim 8, wherein the glass blocks are sealed in the matrix with caulking material between the edge faces thereof.

15. The assembly according to claim 14, wherein the glass blocks have central recesses on the edge faces and wherein the caulking enters the recesses.

16. The assembly according to claim 1, wherein the primary and secondary muntin webs have at least one edge along the width thereof having a bead thereon and the assembly further comprises a plurality of elastomeric joint covers that snap over the beads.

17. The assembly according to claim 16, wherein the elastomeric joint cover has a graffiti-resistant coating.

18. The assembly according to claim 1, wherein the muntin webs have exposed beads along an edge of the muntin webs.

19. The assembly according to claim 18, wherein the beads are concealed by joint sealant.

20. The assembly according to claim 1, wherein the muntin webs have exposed beads along edges of the muntin webs.

21. The assembly according to claim 20, wherein the beads are concealed by joint sealant.

22. The assembly according to claim 1, wherein the width of the primary and secondary muntins is less than the width of the edge faces of the glass blocks.

23. The assembly according to claim 1, wherein the width of the primary and secondary muntins is equal to or greater than the width of the edge faces of the glass blocks.

24. The assembly according to claim 1, wherein the structural perimeter frame comprises two channels, one channel with extending substantially

parallel webs sliding within extending parallel webs of the other channel and with gaskets therebetween permitting slight relative movement.

25. The assembly according to claim 1, wherein the structural perimeter frame comprises two two-part channels, one channel with extending substantially parallel webs sliding within extending parallel webs of the other channel with gaskets therebetween permitting slight relative movement, the individual parts of the channels connected by a thermal break.

26. The assembly according to claim 1, wherein the structural perimeter frame comprises at least one channel having a center web with a non-metallic thermal break.

27. An assembly of glass blocks held in a structural frame for non-vertical use comprising:

- a plurality of glass blocks having two rectangular display faces and four edge faces;

- a rectangular structural frame having four sides;

- a plurality of extruded primary muntins, each primary muntin comprising an elongate web with stand-offs extending outward from the web and at least one elongate hollow boss integral with the web, the primary muntins extending entirely across the structural frame, a stop flange integral with each primary muntin and perpendicular thereto for receiving a gasket abutting the edges of an exposed glass block display face;

- a plurality of extruded secondary muntins, the secondary muntins comprising a web with stand-offs extending outward from the faces of the web and at least one hollow boss integral with the web, a stop flange integral with each secondary muntin and perpendicular thereto for receiving a gasket abutting the edges of an exposed glass block display face, lengths of the secondary muntins extending just somewhat longer than lengths of edge faces or the display faces of the glass blocks; and

- a plurality of structural rods inserted through the hollow bosses of the secondary muntins and also through holes in the primary muntins and extending entirely across the structural frame, such that the primary and secondary muntins form a matrix within the structural frame with openings for receiving the plurality of glass blocks.

28. The assembly according to claim 26, wherein the matrix is secured to the structural frame by nuts on threaded ends of the rods inserted through the hollow bosses of the secondary muntins or by screw fasteners engaging the hollow bosses in the primary muntins.

29. The assembly of claim 26, wherein sections of the primary and secondary muntins are different in that the hollow bosses in the primary muntins are not located at the same position across the width of the muntin as the hollow bosses in the secondary muntins.

30. The assembly of claim 28, wherein a plurality of structural rods is inserted through the hollow bosses of the primary muntins and extends entirely across the structural frame.

31. The assembly of claim 28, further comprising an elastomeric spacer providing a surface to subsequently mate with caulking, the caulking being adhered to outer edges of the muntins and to the glass blocks after the glass blocks are inserted in the matrix.

32. The assembly of claim 28, further comprising a backing pad providing a surface to subsequently mate with caulking, the caulking being adhered to outer edges of the muntins and to the glass blocks after the glass blocks are inserted in the matrix.

33. The assembly of claim 27, wherein gaskets are positioned between the stop flanges and the glass blocks to seal the perimeter of each glass block.

34. The assembly of claim 27, wherein the stop flanges of the secondary muntins rest on the stop flanges of the primary muntins.

35. The assembly of claim 34, wherein the gaskets positioned on the stop flanges of the primary and secondary muntins are each sized so as to provide a level bed for receiving the glass blocks inserted in the matrix.

36. An assembly of glass blocks and vision glass comprising:  
a plurality of glass blocks having two rectangular display faces and four edge faces;  
a vision glass;  
a rectangular structural frame having four sides;  
a plurality of extruded primary muntins, each primary muntin comprising an elongate web with stand-offs extending outward from the faces of the web and at least one elongate hollow boss integral with the web, the primary muntins extending entirely across the structural frame;  
a plurality of extruded secondary muntins, the secondary muntins comprising a web with stand-offs extending from the faces of the web and at least one hollow boss integral with the web, lengths of the secondary muntins extending just somewhat longer than lengths of the edge faces or the display faces of the glass blocks;  
and  
a plurality of structural rods inserted through the hollow bosses of the secondary muntins and extending entirely across the structural frame, such that the primary and secondary muntins form a matrix within the frame with openings for receiving the plurality of glass blocks,  
wherein one side of the structural frame comprises a flexible structure including two facing channels that have restricted relative motion therebetween, one facing channel supporting structural rods and muntins perpendicular thereto and the other facing channel supporting the vision glass.

37. An assembly of glass blocks held in a structural frame comprising:  
a plurality of glass blocks each having two rectangular display faces and four edge faces;  
a rectangular structural perimeter frame having four sides; and  
a plurality of primary muntins, each primary muntin connected to the rectangular structural perimeter frame and comprising an elongate web with stand-offs extending outward from the web and at least one elongate hollow boss integral with the web, the primary muntins extending entirely across the structural perimeter frame,  
wherein the primary muntins define an array within the structural perimeter frame with openings for receiving the plurality of glass blocks.

38. The assembly of claim 37, further including a plurality of structural rods inserted through the hollow bosses of the plurality of primary muntins and extending entirely across the structural perimeter frame.

39. The assembly of claim 37, further including a plurality of screw fasteners inserted through the hollow bosses of the plurality of primary muntins.